2004/1764

PATENT

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 December 22, 2005.

Suzanne M. Britt

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 09/782,585 Attorney Docket: DP-302896

Filing Date: 02/13/2001

Applicant: Malcolm James Grieve

Group Art Unit: 1764

Examiner: Patel, Vinit H.

Title: TEMPERATURE/REACITON MANAGEMENT SYSTEM FOR FUEL REFORMED SYSTEMS

MS Fee/Non-Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

REQUEST TO WITHDRAW NOTICE OF ABANDONMENT
OR, IN THE ALTERNATIVE,
PETITION TO REVIVE APPLICATION

Sir:

This follows a Notice of Abandonment, mailed April 8, 2005.

For the reasons set forth herein, Applicants respectfully request that the Notice of Abandonment be withdrawn, that the application be returned to active status, and that the examination of the application continue.

In the event, despite the reason set forth herein, the subject application is nevertheless deemed to have become abandoned, Applicants hereby petition that the application be revived as having been unintentionally abandoned.

Request to Withdraw Abandonment

The Notice of Abandonment gives as the reason that Applicant failed to timely file a proper reply to the Office Action mailed September 30, 2004. Applicant has reviewed the file and confirmed that an Amendment was mailed by first class mail to the Patent Office on March 30, 2005. Enclosed is a copy of Amendment that was mailed on March 30, 2005. Page 1 includes a Certificate of First Class Mailing, signed by Katie Hales, certifying that the correspondence was deposited with the United States Postal Service with first class postage to the Patent Office on March 30, 2005. The Amendment was accompanied by a Petition for Extension of Time, a copy of which is also enclosed. The Petition for Extension of Time also bears a Certificate of First Class Mailing, signed by Katie Hales, certifying that the correspondence was deposited with the United States Postal Service with first class postage to the Patent Office on March 30, 2005. The Petition for Extension of Time extended the period for response to the Office Action to March 30, 2005.

In view of this, it appears that the Amendment and Petition for Extension of Time was mailed on March 30, 2005, and so, in view of the extension of the period for response, was timely filed. Therefore, it is respectfully requested that the Notice of Abandonment be withdrawn and the application be returned to active status. Applicant requests that a search of Patent Office files be conducted to locate the Amendment and Petition, and, in the event that the documents cannot be located, that the enclosed Amendment and Petition be entered in the file, and examination of the subject application proceed.

Alternative Petition for Revival of Unintentionally Abandoned Application

While Applicant contends hat the Notice of Abandonment is improper and should be withdrawn for the reasons herein, in the alternative, Applicant petitions under 37 CFR 1.137(b) to revive the application as an application that was unintentionally abandoned.

Under 37 CFR 1.137, a Petition requires the following items:

(1) A Petition Fee: The Commissioner is hereby authorized to charge the fees associated with this Petition to Deposit Account No. 50-0831.

(2) A Reply: A copy of the Amendment is enclosed herein and is filed in reply to the Office Action of September 30, 2004.

(3) No terminal disclaimer is required because the application was filed after June 8, 1995.

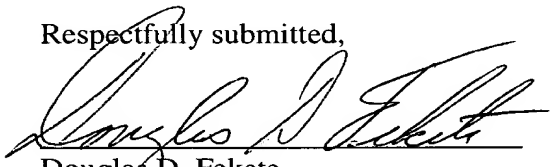
(4) STATEMENT: The entire delay in filing the required reply from the due date for the required reply until the filing of this petition was unintentional.

Conclusion

For the reasons set forth in Amendment, it is believed that all grounds of rejection of the claims have been addressed and overcome, and that all claims are in condition for allowance. If it would further prosecution of the application, the Examiner is urged to contact the undersigned at the phone number provided.

The Commissioner is hereby authorized to charge any fees associated with this communication to Deposit Account No. 50-0831.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on March 30, 2005.

Katie Hales

Katie Hales

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 09/782,585 Attorney Docket: DP-302896

Filing Date: 02/13/2003

Applicant: Malcolm James Grieve

Group Art Unit: 1764

Examiner: Patel, Vinit H.

Title: TEMPERATURE/REACITON MANAGEMENT SYSTEM FOR FUEL REFORMED SYSTEMS

PETITION FOR EXTENSION OF TIME

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Please grant a THREE (3) month extension of time from 30 DECEMBER 2004 to 30 MARCH 2005 to allow sufficient time for response to the Office Action.

Please charge the fee for this petition and any additional fees to Delphi Technologies, Inc., Deposit Account 50-0831.

Respectfully submitted,

Douglas D. Fekete
Reg. No. 29,065
Delphi Technologies, Inc.
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Application No.: 09/782,585 Attorney Docket: DP-302896

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Commissioner for Patents
P.O. Box 1450
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AMENDMENT

Sir:

In response to the Office Action mailed September 30, 2004, please amend the subject application and consider the remarks set forth herein. A Petition for Extension of Time is being filed concurrent with this Amendment to extend the period for response three (3) months to March 30, 2005.

AMENDMENTS TO THE CLAIMS

Please amend claims 6, 8, 10, and 16, and cancel claims 1-5. 7, 9, and 11, as set forth in the listing of claims that follows:

1-5. (Cancelled)

6. (Currently Amended) The system of Claim 16 ~~1~~, wherein said mat material further comprises a type of material selected from the group consisting of woven, mesh like, fibrous, cloth like, paper like, and combinations comprising at least one of the foregoing types of materials.

7. (Cancelled)

8. (Currently Amended) The system of Claim 16 ~~7~~, wherein said plurality of layers of material further are held together using a binder, wherein said binder further comprises a binder selected from the group consisting of a sealing agent, an adhesive, a ceramic substance, and combinations comprising at least one of the foregoing binders.

9. (Cancelled)

10. (Currently Amended) The system of Claim 16 ~~9~~, wherein said reflective surface further comprises a coating, wherein said coating further comprises a white, opaque material.

11. (Cancelled)

12. (Withdrawn) A method for managing the temperature and reaction of fuel in an energy conversion device, comprising:

dispensing an air/fuel mixture through a mat material disposed against an inlet of a reformer system;

maintaining a first temperature before said inlet that is less than a second temperature of a gas phase reaction;

inhibiting the propagation of a flame into said reformer system; and

dispensing said fuel into said reformer system.

13. (Withdrawn) The method of Claim 12, further comprising dispensing said fuel through a flame arrestor fluidly coupled to said mat material.

14. (Withdrawn) The method of Claim 13, further comprising dispensing said fuel through an inert material fluidly coupled to said flame arrestor.

15. (Withdrawn) The method of Claim 12, further comprising dispensing said fuel through an inert material fluidly coupled to said mat material.

16. (Currently Amended) A fuel reformer system, comprising:

a reforming zone comprising a reformer catalyst substrate having an inlet;

a mat material fluidly coupled to said inlet ~~reforming zone~~, said mat material comprising a plurality of layers of a ceramic fibrous material and having a reflective surface facing the inlet; and

a mixing zone fluidly coupled to said mat material ~~reforming zone~~.

17. (Withdrawn) The method of Claim 16, further comprising dispensing said fuel through a flame arrestor fluidly coupled to said mat material.

18. (Withdrawn) The method of Claim 16, further comprising dispensing said fuel through an inert material fluidly coupled to said flame arrestor.

19. (Withdrawn) The method of Claim 16, further comprising dispensing said fuel through an inert material fluidly coupled to said mat material.

REMARKS

Claim 16 is amended to more particularly point out that the recited mat material comprises a plurality of layers of a ceramic fibrous material and has a reflective surface facing the inlet, as described beginning at page 6, line 12. Claims 6, 8 and 10 are made dependent upon independent claim 16.

Claim Rejection based upon Kneidel

Claim 16 was rejected under 35 U.S.C. § 102(e) as anticipated by United States Patent No. 6,326,095, issued to Kneidel in 2001.

Kneidel describes an apparatus comprising a reformer that includes a bed of catalyst 13, see Fig. 2. The rejection points to a screen 15 used to constrain the catalyst see col. 3, lines 47-49. In contrast, the present invention comprises a mat material that functions as an insulation material, radiation shield, filtration device, flame arrestor and thermal barrier, see page 6, lines 14-18. Moreover, the mat material in accordance with the present invention comprises multiple layers of a ceramic fibrous material. Kneidel points to a screen having strength sufficient to retain a catalyst bed, as opposed to a fibrous mat that would not prevent shifting of the bed. Moreover, the screen in Kneidel does not provide a thermal barrier to prevent heat from the reformer from causing premature reactions in the gas prior to the catalyst bed. Thus, Kneidel does not anticipate or even suggest Applicant's

invention.

Claim 16 is directed to a fuel reformer system that includes a reformer catalyst substrate and mat material coupled to the inlet of the substrate. Kneidel shows a screen retaining a bed, and does not point to an arrangement of a substrate and a mat. In accordance with the claim, the mat material comprises a plurality of layers, whereas Kneidel shows only one layer for the screen. Moreover, although Kneidel does not provide details, it appears to contemplate a metal screen with strength to support the bed, and would not point a practitioner to ceramic fibrous mat. Thus, Keidel does not teach or even suggest Applicant's invention as set forth in claim 16.

Accordingly, it is respectfully requested that the rejection of claim 16 based upon Kneidel be reconsidered and withdrawn, and that the claim be allowed.

Claims Rejection based upon Kneidel and secondary references

The remaining claims in the case, some of which have been cancelled and the remainder of which have been made dependent upon claim 16, were rejected under 35 U.S.C. § 103 as unpatentable over Kneidel in combination with one or more of United States Patent No. 4,444,109, issued to Gifford in 1984; United States Patent No. 5,175,062, issued to Farooque et al. in 1992; United States Patent No. 5,342,434, issued to Wu in 1994; and United States Patent No. 4,894,070, issued to Keidel et al.

in 1990.

For the reasons set forth above, Kneidel does not teach or suggest a reformer that includes a mat material formed of multiple layers of ceramic fibrous material at the inlet to a catalyst substrate, as called for in claim 16. Moreover, the secondary references also fail to show these features.

Gifford is applied to a show a flame arrestor. However, Gifford is directed to an explosive detonation system, see col. 2, beginning at line 34, and does not contemplate a fuel reformer. It is pointed out that Applicant's system also preferably includes a flame arrestor 90 in combination with a mat material, see page 8, beginning at line 11. Nothing in Gifford contemplates a mat material with the flame arrestor. Furthermore, the flame arrestor in Gifford is formed of a stainless steel micro filter, col. 4, lines 18-25. Thus, even when combined with Kneidel, Gifford does not lead the practitioner to include a ceramic fibrous mat material, so as to arrive at a system in accordance with Applicant's claim 16.

Farooque et al. is applied to show a reforming unit 7A in Fig. 2 that includes inert material 7-16 adjacent the inlet. The inert material helps to promote uniform temperatures within the unit, col. 5, lines 6-21. Details of the inert material are not provided. However, nothing in Farooque et al. describes a mat material that includes a plurality of layers of a ceramic fibrous material and has a reflective surface facing the catalyst bed. Thus, even when combined with Kneidel, the references do not

lead the practitioner to the reformer system having a mat material with the features set forth in claim 16.

Wu is cited to show a gas permeable material. More particularly, Wu describes an organic coating applied to passageways within a substrate material, col. 1, beginning at line 35. The coated product is useful for medical devices or industrial filtration, col. 3, lines 50-53. Wu doe not disclose a fuel reformer, or suggest use of the coated material at high temperatures such as experienced within a fuel reformer. Indeed, because of the organic nature of the coating, it is expected that such coating would decompose at such high temperatures. Thus, there is nothing in either Kneidel or Wu to lead the practitioner to substitute the coated material in Wu within the reformer of Kneidel. Therefore, the references cannot be fairly combined as pointing the practitioner to Applicant's invention in claim 16.

Keidel et al. is cited to disclose a high temperature binder for bonding short tubes to form elongated tubes for purposes of forming a filter. However, Keidel et al. does not disclose a fuel reformer. Thus, nothing in Keidel et al. points to a mat material coupled to the inlet to a reformer catalyst substrate. Moreover, Keidel et al. does not show a material adapted to constrain a catalyst bed. Thus, there is nothing in the combination of the references to lead the practitioner to select the tubes in Keidel et al., form the material into a mat, and substitute the mat for the stainless steel retainer in Kneidel. Therefore, the references do not lead the practitioner to Applicant's invention.

Claim 16 is directed to Applicant's fuel reformer system that includes a reformer catalyst substrate and a mat material coupled to the inlet to the substrate. The mat material comprises a plurality of layers of ceramic fibrous material and has a reflective surface facing the inlet. As discussed above, the primary reference Kneidel uses a stainless steel screen to retain the bed. Given the construction in Kneidel, the practitioner is not lead to substitute a fibrous mat to provide the strength and rigidity needed to support the bed. Farooque et al., the only secondary reference that relates to a fuel reformer, also does not show a fibrous mat. The remaining secondary references are applied to show isolated features of the dependent claims, but do not relate to fuel reformers, or show a fibrous mat material in an application akin to a fuel reformer. Thus, the references, even when combined, do not lead the practitioner to Applicant's fuel reformer system in claim 16. It follows, therefore, that the references cannot suggest the fuel reformer system with the additional feature in the claims dependent upon claim 16.

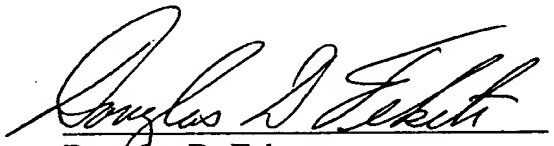
Therefore, it is respectfully requested that claims 6, 8 and 10 be reconsidered and withdrawn, and that the claims be allowed.

Conclusion

It is believed, in view of the amendments and remarks herein, that all grounds of rejection of the claims have been addressed and overcome, and that all claims are in condition for allowance. If it would further prosecution of the application, the Examiner is urged to contact the undersigned at the phone number provided.

The Commissioner is hereby authorized to charge any fees associated with this communication to Deposit Account No. 50-0831.

Respectfully submitted,



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